

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT : SIMON J. BROADLEY )  
SERIAL NO. : 09/478,578 )  
FILED : January 6, 2000 ) Ex. K. Nguyen  
FOR: : SELF-OSCILLATING VARIABLE ) Group 2817  
FREQUENCY CLOSED LOOP )  
CLASS D AMPLIFIER )

AMENDMENT AND REQUEST FOR RECONSIDERATION

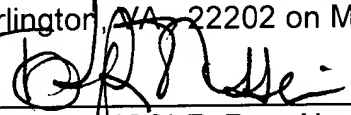
Hon. Commissioner of  
Patents and Trademarks,  
P.O. Box 2327  
Arlington, VA 22202

Dear Sir:

This is in response to the Office Action of December 28, 2001, in the above-identified application.

Kindly amend the application as follows.

I hereby certify that this correspondence is being deposited with the United States Postal Service as CERTIFIED MAIL NO. 7002 0510 0002 1154 5689 in an envelope addressed to: HON. COMMISSIONER OF PATENTS AND TRADEMARKS, P.O. Box 2327, Arlington, VA 22202 on May 28, 2002

  
TOD R. NISSLE, Reg. No. 29,241 May 28, 2002  
DATE

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1 IN THE CLAIMS

2  
3 Delete Claims 4 to 6. Insert new Claims 7 to 9.

4  
5 The foregoing amendments are reflected in the attached **APPENDIX I:**  
6 **Replacements, Deletions, Additions** and **APPENDIX II: Marked up Versions.**  
7

8  
9 REQUEST FOR RECONSIDERATION

10  
11 The Examiner's thoughtful attention to this application is sincerely  
12 appreciated.  
13

14  
15 Reconsideration of the rejections set forth in the Office Action of December  
16 28, 2001, is respectfully requested in view of the foregoing amendments and following  
17 remarks.  
18

19  
20 The Invention

21  
22 Applicant provides a class D amplifier. The selection of the control function is the  
23 heart of an amplifier.  
24

25 Applicant believes he is first to provide a self-oscillating class D amplifier that utilizes  
26 a **non-inverting feedback** control function and a non-inverting output.  
27  
28

1           The Pullen reference (U.S. 6,107,875) discloses an amplifier in Figs. 1 and 3 that  
2 utilizes an **inverting** feedback control function and an inverting output.  
3

4           The Higashiyama et al. reference (U.S. 6,091,292) also discloses an amplifier that  
5 utilizes an **inverting** feedback control function and an inverting output. Higashiyama also  
6 is not self-oscillating.  
7

8  
9           Applicant's claims set forth in section (d) a "**non-inverting**, negative feedback error  
10 amplifier circuit".  
11

12           Consequently, Applicant respectfully submits that the invention is not anticipated  
13 under 35 U.S.C. Section 102 by the references of record.  
14

15  
16           If the Examiner believes that there is disclosure in the Pullen or Higashiyama  
17 references that indicates the control functions and output of the amplifiers are non-  
18 inverting, Applicant respectfully requests that the Examiner identify such disclosure.  
19 Applicant has studied these references in some detail, and it appears to Applicant that the  
20 amplifiers in the references include an inverting control function and an inverting output.  
21

22  
23           If the Examiner finds merit in the foregoing remarks and amendments, it is  
24 believed the application is in condition for allowance, and such action is earnestly solicited.  
25  
26  
27  
28

Respectfully submitted,



TOD R. NISSLE, Reg. No. 29,241

TOD R. NISSLE, P.C.

P. O. Box 55630

Phoenix, Arizona 85078

Tel: 602-494-8700

Fax: 602-494-8707

E-mail: [nissle@nissle.com](mailto:nissle@nissle.com)

Attorney's Docket No. 995-P-3



## APPENDIX I: Replacements, Deletions, Additions

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## REPLACEMENTS

- I. Title: None.
- II. Specification: None.
- III. Claims: None.
- IV. Abstract: None.

## DELETIONS

- I. Title: None.
- II. Specification: None.
- III. Claims

Delete Claims 4 to 6.

- IV. Abstract: None.

## ADDITIONS

- I. Title: None.
- II. Specification: None
- III. Claims

Add new Claims 7 to 9. "PVM" has been amended to read "PWM".

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- C1
7. A self oscillating audio Class D amplifier, comprising
- (a) a detector for receiving a PWM waveform control signal and producing a digital waveform switching signal to activate one of a pair including a positive switch and a negative switch to correct gain produced by the Class D amplifier;
  - (b) an output stage including a positive switch and a negative switch, said output stage receiving said switching signal and activating one of said switches to produce a digital driving signal;
  - (c) an output filter to receive said digital driving signal, remove switching noise and provide an amplified non-inverting audio analog output signal to drive a load;
  - (d) a non-inverting, negative feedback error amplifier circuit to
    - (i) receive said amplified analog output signal and compare said output signal to said input signal for gain-correction purposes, and
    - (ii) produce said PWM waveform control signal;
- said amplifier self-oscillating.
- D
8. A self oscillating audio Class D amplifier, comprising
- (a) a detector for receiving a PWM waveform control signal and producing a digital waveform switching signal to activate one of a pair including a positive switch and a negative switch to correct gain produced by the Class D amplifier;
  - (b) an output stage including a positive switch and a negative switch, said output stage receiving said switching signal and activating one of said switches to produce a digital driving signal;
  - (c) an output filter to receive said digital driving signal, remove switching noise and provide an amplified non-inverting audio analog output signal to drive a load;
  - (d) a non-inverting, negative feedback error amplifier circuit to
    - (i) receive said amplified analog output signal and compare said output signal to said input signal for gain-correction purposes, and

(ii) produce said PWM waveform control signal;  
the operation of said amplifier slowing as the magnitude of the error in gain increases,  
said amplifier self-oscillating.

9. A self oscillating audio Class D amplifier, comprising

- C1  
Cmt
- (a) a variable frequency zero crossing detector for receiving a PWM waveform control signal and producing a digital waveform switching signal to activate one of a pair including a positive switch and a negative switch to correct gain produced by the Class D amplifier;
  - (b) an output stage including a positive switch and a negative switch, said output stage receiving said switching signal and activating one of said switches to produce a digital driving signal;
  - (c) an output filter to receive said digital driving signal, remove switching noise and provide an amplified non-inverting audio analog output signal to drive a load;
  - (d) a non-inverting, negative feedback, error amplifier circuit to
    - (i) receive said amplified analog output signal and compare said output signal to said input signal for gain-correction purposes, and
    - (ii) produce said PWM waveform control signal;

the operation of said amplifier slowing as the magnitude of the error in gain increases,  
said amplifier self-oscillating.

IV. Abstract: None.



## **APPENDIX II: Marked Up Versions**

Marked Up Versions

I. Title: None.

II. Specification: None.

III. Claims: None.

IV. Abstract: None.



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2817  
# TL

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**Box Office Actions**

Assistant Commissioner  
of Patents  
PO Box 2327  
Arlington, VA. 22202

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Date of Deposit: 05/28/02

I hereby certify that the attached

Request for Extension of Time; Extension of Time Check No. 23658; Amendment and Request for Reconsideration; and return postcard are being deposited with the United States Postal Service as “CERTIFIED MAIL -- RETURN RECEIPT REQUESTED” service under 37 CFR 1.10 on the date indicated above and is addressed to : Attn. Office Actions, Assistant Commissioner for Patents, Washington, D.C. 20231.

TOD R. NISSLER, Reg. No. 29,241

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